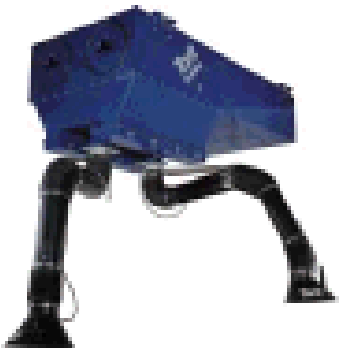
Contents



1.0 Purpose/Scope

This procedure provides a standardized method for conducting periodic validation of the effectiveness of local exhaust ventilation (LEV) systems. This procedure is based on routine testing of the acceptable operating parameters of the system determined in initial system evaluations using IH 62400. By completing this SOP, BNL will:

- Document the performance of LEV systems and verify operation in accordance with design specifications
- Verify compliance of operations with applicable codes

Periodic tests are to be made:

- Throughout the life of the system to ensure continuing performance. BNL's frequency for periodic testing is:
  - **12** months (or per manufacturer's recommendation) when OELs are exceeded,
  - **36** months is recommended when OELs are not exceeded and the ventilation system is not critical for worker protection.
- Whenever major modifications are made to the system
- On start-up of a system that has been dismantled, out-of-service, and reassembled, and
- When complaints of poor performance are made by operating personnel.

2.0 Responsibilities

This procedure will be implemented through the RCD Facility Support Group Leader with assistance from the SHSD Industrial Hygiene Group Leader.

3.0 Definitions

None.

4.0 Prerequisites

4.1 Prior to testing a local exhaust system, verify the calibration and operability of the test equipment.

4.2 Observe area postings and obtain approval to enter the test area, as required.

5.0 Precautions

5.1 **Hazard Determination:**

5.1.1 By its very nature, a test may be done in areas where chemicals or radiation contamination is known or suspected to be present. Exposure to these contaminants can have significant health effects. These hazards must receive a hazard evaluation by a cognizant ESH professional. This operation may use hazardous chemicals that could result in employee exposure (smoke tubes). The gases, vapors, or aerosols that the exhaust systems are used to capture could cause exposure to the tester. Appropriate measures to minimize contact with solid or liquid contaminant and inhalation of solid, liquid, vapor, or gas contaminant must be made.

5.1.2 Air testing meters used in this procedure do not generate in Hazardous Waste. Smoke tubes or candles may be used, but their environmental impact is not significant. Expended smoke tubes and candles are not considered hazardous wastes. The test equipment design does not cause significant ergonomic concerns in routine use.

5.2 **Personal Protective Equipment**

5.2.1 Hand: Contact with aerosol liquid should be minimized as it could pose a

health risk. Use of this operation in areas of known or suspected chemical or radiological contamination requires the use of disposable gloves. Exam-style, splash gloves are acceptable. Acceptable elastomers are: Nitrile, PVC, and Natural Rubber.

5.2.2 Body:

- If contact of the body with contaminated surfaces is anticipated, a disposable suit should be used. Acceptable Chemical protective clothing (CPC) materials include: *Tyvek®, KleenGuard®*, and cotton. Disposable garments must be discarded as per *Hazardous Waste Management Division* instruction.
- If contact with potentially contaminated surfaces is not expected, protective clothing is optional. However, if personal clothing items become contaminated, they must be surrendered for BNL cleaning or disposal.

5.2.3 Foot:

- If contact of the feet is anticipated with contaminated surface, disposable shoe coverings, boots or booties should be used. Acceptable CPC material include: *Tyvek®, KleenGuard®*, and rubber.
- If contact with potentially contaminated surfaces is not expected, shoe coverings are optional. However, if personal shoes become contaminated, they must be surrendered for BNL cleaning or disposal.

5.2.4 Respiratory: Under normal use, respiratory protection is not required. If chemical or radiological levels from contamination in the area cause the OSHA, ACGIH, or DOE standards to be exceeded, respirators are required.

5.2.5 Eye: Safety Glasses with side shields are required.

6.0 Procedure

6.1 Testing Equipment:

- Air ventilation tester: Velometer, Anenometer, Balometer, Smoke tubes or candles, etc. Follow the appropriate SHSD IH SOP on the operation of the meter/equipment.

6.2 Pre-Testing Inspection of LEV system equipment

6.2.1 Verify that the exhaust ventilation system is operating.

6.2.2 Inspect the exhaust system and its associated ductwork and mechanical components for any obvious signs of damage (e.g., missing or damaged seals, breached ductwork, excessive rust, or unusually loud motor noise). Notify Plant Engineering and the system owner of these conditions. Do not test if the system is not operable or not of adequate integrity.

6.2.3 Verify that changes have not been made since the *initial evaluation.* Changes that would require a new *initial evaluation* include changes in the type of hazards, the rate of hazard generation, or mechanism of hazard generation.

6.2.4 If there are questions or concerns regarding the operation of the system, review the original design drawing, manufacturer's literature, or any other appropriate information.

6.3 Measuring Operational Parameters

6.3.1 Following the drawing of the system or digital photograph on the specific *LEV System Periodic Validation Test* record form for the exhaust system to be tested, locate the pre-determined sampling point.

6.3.2 From the specific *LEV System Periodic Validation Test* record form, determine the appropriate operational parameter(s) for the ventilation system.

6.3.3 Measure the appropriate operational parameter(s) using an IH Series 62nnn SOP or RCD Facility Support SOP on the test method. If a BNL SOP is not available, follow the manufacturer's recommendation in conducting the measurement.

6.3.4 Record the results on the *LEV System Periodic Validation Test Record* and the *Local Exhaust Ventilation* test label or tag.

6.4 Record-keeping: Provide A copy of the *LEV System Periodic Validation Test Record* to the Divisional Safety Coordinator, the Process/Operation and Exhaust system owner/management, and any other interested parties. The original test report is retained by organization responsible for periodic testing in accordance with the record keeping requirements of SEP ADM-001. A copy of the record should be sent to SHSD IH lab.

7.0 Implementation and Training

7.1 Tests shall be performed by persons who have demonstrated the competence to

satisfactorily perform the tests as evidenced by experience and training.

7.1.1 SHSD: Determination of qualification to use this procedure, testing of applicants, and documentation of qualification shall be set by the IH Group Leader, or designee.

7.1.2 RCD: Determination of qualification to use this procedure, testing of applicants, and documentation of qualification shall be set by the RCD Facility Support Group Leader, or designee.

8.0 References

8.1 American Conference of Governmental Industrial Hygienists (ACGIH). Industrial Ventilation: A Manual of Recommended Practice.

8.2 American Conference of Governmental Industrial Hygienists (ACGIH). *Guidelines for Testing Ventilation Systems*; 1991.

9.0 Attachments

9.1 *Local Exhaust Ventilation Test* Label/sticker

9.2 *Local Exhaust Ventilation Periodic Validation* form

10.0 Documentation

Document Review Tracking Sheet			
PREPARED BY: *(signature on file)* **R. Selvey** **IH Group Leader** **Date 11/20/02**	**REVIEWED BY:** *(signature on file)* **C. Weilandics** **RCD Facility Support** **Date 11/22/02**	*(signature on file)* **J. Peters** **IH Field Team Leader** **Date 11/22/02**	**APPROVED BY:** *(signature on file)* **R. Selvey** **IH Group Leader** **Date 11/22/02**
Filing Code: **IH62QR.02**	**DQAR** **Date**		**Effective Date:** **11/22/02**

Periodic Review Record		
Date of Review	Reviewer Signature and Date	Comments Attached

ATTACHMENT 9.1

Periodic Validation Test
Sticker/Label

Local Exhaust System test			
Equipment ID:			
Operating Parameters Validation Test			
Test Date	**Test by: Full Name**	**Pass/Fail**	**Next Due**

IH62410 ATTACHMENT 9.2

BROOKHAVEN NATIONAL LABORATORY

LOCAL EXHAUST VENTILATION
PERIODIC VALIDATION
Environment, Safety & Health Directorate

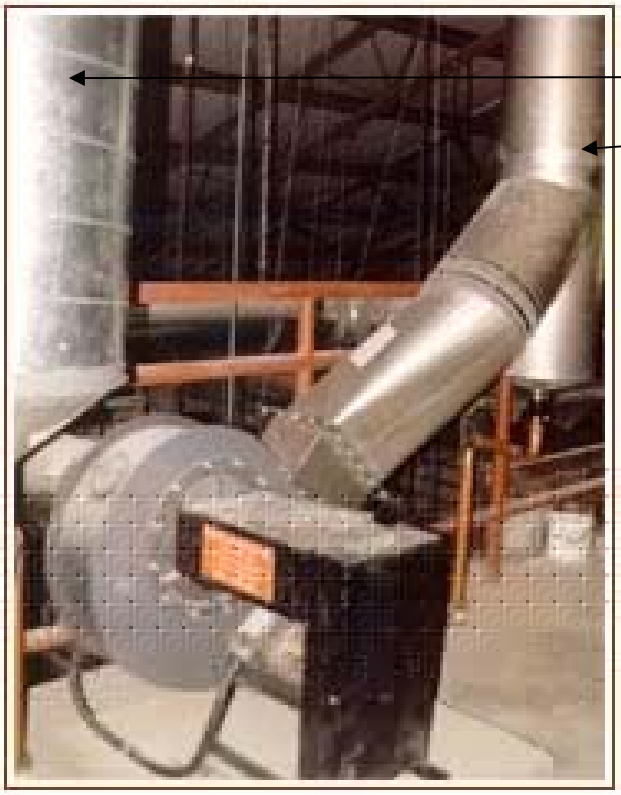
System Identification

DIVISION	BUILDING	ROOM/AREA
SYSTEM DESCRIPTION		
SYSTEM TYPE	MANUFACTURER	
EQUIPMENT ID#	MODEL	SERIAL#
BLDG MANAGER	ESH Coordinator	OTHER CONTACT

Sample
This FORM is prepared uniquely for each piece of equipment

EVALUATOR(S) NAME	SIGNATURE	TEST DATE

System Description (Photograph or Drawing)



BROOKHAVEN NATIONAL LABORATORY

LOCAL EXHAUST VENTILATION
PERIODIC VALIDATION
Environment, Safety & Health Directorate

Field Observations and Measurements-

METER:	METER SN		
METER CALIB. DATE	COMMENTS		
Parameter:	Point	Acceptable Operational specification	Observed Measurement
	A		
	B		
	C		
	D		

METER:	METER SN		
METER CALIB. DATE	COMMENTS		
Parameter:	Point	Acceptable Operational specification	Observed Measurement
	A		
	B		
	C		
	D		

METER:	METER SN		
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